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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,222	09/03/2003	Jin Li	M4065.0735/P735	2741
45374	7590	11/14/2007		
DICKSTEIN SHAPIRO LLP 1825 EYE STREET, NW WASHINGTON, DC 20006			EXAMINER NGUYEN, JOSEPH H	
			ART UNIT 2815	PAPER NUMBER
			MAIL DATE 11/14/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/653,222	LI, JIN	
	Examiner	Art Unit	
	Joseph Nguyen	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21,27 and 47-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21,27 and 47-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 27, 47, 49, 53 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kochi et al. (US Patent No. 6,188,094) in view of Hsiao et al. (US Patent No. 6,821,810).

Regarding claim 21, Kochi et al. discloses in **figure 1** a light system comprising an imager device comprising a substrate (101) having a plurality of photosensitive regions (102); and a substantially planar microlens array (108, 109) formed over said plurality of photosensitive regions; said microlens array comprising a first light conductor (108) having a plurality of concave recesses; and a second light conductor (109) within each recess and over substantially planar surfaces formed between said concave recesses of said first light conductor (108), . It is further noted that the system disclosed in figure 1 of Kochi et al. constitutes similar structure as the claimed structure, and therefore is capable of functioning as "light detecting system" herein. Further, elements 108, 109 together form the substantially planar microlens array that can be provided for a substantially planar imager device herein.

Kochi et al. does not disclose in figure 1 a topmost portion of a topmost light conducting structure in the imager device being substantially planar. However, Hsiao et al. discloses in figure 5 an imager device comprising a topmost portion (48) of a topmost light conducting structure in the imager device being substantially planar so as to optimize long focal length microlens arrays for integrated semiconductor array color imaging device (column 6, lines 35-38). In view of such teaching, it would have been obvious at the time of the present invention to modify Kochi et al. by including a topmost portion of a topmost light conducting structure in the imager device being substantially planar so as to optimize long focal length microlens arrays for integrated semiconductor array color imaging device.

Regarding claim 27, Kochi et al. discloses in **figure 1** an integrated circuit comprising an imager device comprising a substrate (101) having a plurality of photosensitive regions (102); and a substantially planar microlens array (108, 109) formed over said plurality of photosensitive regions; said microlens array comprising a first light conductor (108) having a plurality of concave recesses, said plurality of concave recesses being coextensive, and a second light conductor (109) within each recess and over said first light conductor, said second light conductor (109) being coextensive with an adjacent second light conductor in at least a first plane and having a substantially planar surface, and readout circuitry (104) coupled to said plurality of photosensitive regions (102). Further, elements 108, 109 together form the substantially planar microlens array that can be provided for a substantially planar imager device herein.

Kochi et al. does not disclose in figure 1 a topmost portion of a topmost light conducting structure in the imager device being substantially planar. However, Hsiao et al. discloses in figure 5 an imager device comprising a topmost portion (48) of a topmost light conducting structure in the imager device being substantially planar so as to optimize long focal length microlens arrays for integrated semiconductor array color imaging device (column 6, lines 35-38). In view of such teaching, it would have been obvious at the time of the present invention to modify Kochi et al. by including a topmost portion of a topmost light conducting structure in the imager device being substantially planar so as to optimize long focal length microlens arrays for integrated semiconductor array color imaging device.

Regarding claims 47 and 53, Kochi et al. discloses the first light conductor 108 has a first index of refraction and the second light conductor 109 has a second index of refraction that is different from the first index of refraction (col. 1, lines 53-56).

Regarding claims 49 and 55, Kochi et al. discloses at least the first conductor 108 is formed of material selected from the group consisting of photosensitive gelatin (col. 1, lines 36-39).

Claims 48, 54 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over figure 1 of Kochi et al. and Hsiao et al. and further in view of figure 3A of Kochi et al.

Regarding claims 48 and 54, Kochi et al. and Hsiao et al. do not show the first index of refraction is less than the second index of refraction. However, Kochi et al. also discloses in figure 3A the first index of refraction n_5 is less than the second index of refraction n_4 such that light can be condensed onto photodiode having smaller area (see figure 3A). In view of such teaching, it would have been obvious at the time of the present invention to modify figure 1 of Kochi et al. and Hsiao et al. by including the first index of refraction being less than the second index of refraction such that light can be condensed onto photodiode having smaller area.

Regarding claim 50, Kochi et al. does not disclose in figure 1 a color filter formed over the second light conductor. However, Kochi et al. also discloses in figure 2 a color filter can be formed under the microlenses 17 (col. 5, lines 21-23), which would be above the second light conductor 15 such that light coming through the microlens toward the light conductors 14, 15 can be color filtered. In view of such teaching, it would have been obvious at the time of the present invention to modify figure 1 of Kochi et al. and Hsiao et al. by including a color filter formed above the second light conductor such that light coming through the microlens toward the light conductors 14, 15 can be color filtered.

Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kochi et al. and Hsiao et al. and further in view of figure 1 of the acknowledged prior art (APA).

Regarding claim 51, Kochi et al. does not disclose in figure 1 a color filter formed below the first light conductor. However, figure 1 of (APA) shows a color filter 22 below the first light conductor 12. In view of such teaching, it would have been obvious at the time of the present invention to modify Kochi et al. and Hsiao et al. by having a color filter formed below the first light conductor to allow predominantly light of a specific respective color to pass through an imaging array (page 3, lines 1-5 of the present invention).

Claims 52, 56 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kochi et al.

Regarding claim 52, Kochi et al. discloses in figure 1 substantially all the structure set forth in claim 52. Kochi et al. further discloses a portion of the second light conductor 109 over said planar surface of the first light conductor 108 must have a certain thickness, not necessarily the claimed thickness. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to Kochi et al. by having a portion of the second light conductor over said planar surface of the first light conductor having the claimed thickness, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 56, Kochi et al. discloses the first light conductor 108 has a first index of refraction and the second light conductor 109 has a second index of refraction that is different from the first index of refraction (col. 1, lines 53-56).

Regarding claim 58, Kochi et al. discloses at least the first conductor 108 is formed of material selected from the group consisting of photosensitive gelatin (col. 1, lines 36-39).

Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over figure 1 of Kochi et al. and further in view of figure 3A of Kochi et al.

Regarding claim 57, Kochi et al. does not disclose in figure 1 the first index of refraction is less than the second index of refraction. However, Kochi et al. also discloses in figure 3A the first index of refraction n_5 is less than the second index of refraction n_4 such that light can be condensed onto photodiode having smaller area (see figure 3A). In view of such teaching, it would have been obvious at the time of the present invention to modify figure 1 of Kochi et al. by including the first index of refraction being less than the second index of refraction such that light can be condensed onto photodiode having smaller area.

Response to Arguments

Applicant's arguments with respect to claims 21, 27 and 47-58 have been considered but are moot in view of the new ground(s) of rejection.

Further, with respect to claim 52, the only difference between claim 52 and Kochi et al. is merely the thickness of the a portion of the second light conductor being equal to $\lambda/2 * N$. However, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205

USPQ 215 (CCPA 1980). Moreover, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

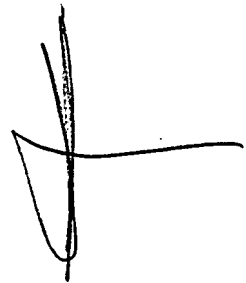
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (571) 272-1734. The examiner can normally be reached on Monday-Friday, 8:30 am- 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications.

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A handwritten signature in black ink, consisting of a stylized 'K' followed by a horizontal line extending to the right.

KENNETH PARKER
SUPERVISORY PATENT EXAMINER

Joseph Nguyen

Patent Examiner

November 6, 2007.